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| **Subject / Course:** Mathematics | **TC Name:** Yana Ma | |
| **Grade Level:** 8 | **Date:** Oct 18, 2010 | |
| **Topic:** Organizing and Presenting Data | **Time of Class:** 75 minutes | |
| **AT Name:** Mary Miller | **Room # / Location:** 210 | |
| **1. Curriculum Expectation(s) and Goal(s) for the Lesson** | |  |
| 1. **Expectations**:  |  | | --- | | *Collection and Organization of Data*   1. explain the relationship between a census, a representative sample, sample size, and a population   *Data Relationships*   1. read, interpret, and draw conclusions from primary data and from secondary data presented in charts, tables, and graphs | | | |
| 1. **Goal(s) for the lesson:**  |  | | --- | | In the end of the lesson, students will be able to:   1. Demonstrate the understanding of the relationship between a census, a representative sample, sample size and a population 2. Demonstrate the ability to select the sample size 3. Demonstrated the ability to draw conclusions from a sample | | | |
| **2. Pre-assessment and Accommodations/Modifications** | | |
| |  |  | | --- | --- | | **Pre-assessment:** | **Accommodation/Modification:** *(how will you adapt your lesson?)* | | **Academic Needs:**  **Behavioural/Social/Emotional Needs:**  **Physical Needs:**  **Diversity Needs:** | Give fewer questions to students who have difficulty completing the work  -Allow students to work in pairs  -Be selective in the questions assigned to students who have difficulty  Ensure students who are easily distracted are asked to participate in activities  Stress the importance of cooperation-this is not a competition  Pair up Learning Disability students and ESL students with somebody who can help | | | |

1. **Learning Environment**

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| The Smart Board will be next to the teacher.  Students will be required to clear their desk at the beginning of the lesson.  Before group work students will be asked to form the table into 5 groups of 6 people  During group activities and seat work the teacher will circulate throughout the classroom.  All handouts and required materials will be ready at the teacher’s desk(to the right of the teacher) |

1. **The Overview (Agenda) for your lesson:**

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| 1. Minds on( 5 minutes) 2. Consolidation-using Frayer Model to check students’ understanding (11 minutes) 3. Minds on (2 minutes) 4. Observation and class survey( 30 minutes) 5. Class discussion and reflection (5 minutes) 6. Pair work(10 min) 7. Consolidation-using the Ticket out of the door (5 min)   (Transitions in the middle) |

**5. Resources and Materials for your class**

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| 1. Smart Board 2. Teacher’s laptop 3. Clickers 4. 32 slips of paper 5. A bag 6. 5 chart papers 7. 6 coloured markers 8. Pencils (students have their own pencils) 9. Grade 8 Math Textbook 10. Internet |

1. **Content, Teaching Strategies, for Lesson**

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| ***Time*** | ***Teaching or***  ***Assessment Strategy*** | ***Detailed Description*** |
| *5 min.* | *Introduction* | 1. **(before class) Preparation**  * Before the start of the lesson, the teacher will connect clickers to computer and get software ready * Before the start of the lesson, the teacher will connect Smart Board, projector, laptop and run the software on the laptop with the presentation ready to display  1. **Transition (1 minute)**  * The teacher will get the class attention ( if you can hear me, clap one..., 1,2,3, all eyes on me) * The teacher will ask the students to clear their desks in 40 seconds( use Smart Board to show the time) * The teacher will write the agenda on the Smart Board  1. **Minds On/Hook (4 minutes)**  * The teacher will get class attention(can I have your attention please) * The teacher will display questions on Smart Board and ask students to answer questions with clickers * The teacher will assess the whole class’s understanding of organizing and presenting data |
| *11 min* | *Consolidation*  *Using a graphic organizer for assessment* | *Consolidation*   1. **Transition(1 minute)**  * The teacher will group students into 6 groups * The teacher will ask the person with the longest hair in each group to come to the teacher’s desk and get a chart and a marker for their group  1. **Frayer Models-Review for graphs (10 minutes)**  * Each group will work together to define different graphs * If the group finishes they will exchange models and perform a “pairs check”. Students will put their names on their model and hand it in before leaving the class |
| *39 min* | *Instruction*  *Direct Instruction*  *Cooperative learning*  *Class Discussion* | 1. **Transition (1 minute)**  * The teacher will introduce the next activity: exploring sample size  1. **Minds On (2 minutes)**  * The teacher will ask one student: do you have the same middle name as your mother or father? * The teacher will announce to the class that: based on this sample, no one or everyone in the entire school has the same middle name as their parents * The teacher will ask students to discuss the question and the result * The teacher will introduce the new topic: data collection-sample size  1. **Transition (1 minute)**  * The teacher will introduce the class survey activity  1. **Class survey (30 minutes)**  * The teacher will ask students to secretly record his or her preference for milkshake flavour (chocolate, vanilla, or strawberry) on a slip of paper and put it in a bag * The teacher will take a sample from the bag * The teacher will ask a student to record the the flavour in the chart on the Smart Board * The teacher will ask students to predict the preferences for the population and ask them if they are confident in their prediction and why * The teacher will take 5 samples from the bag and repeat the last two steps with the star * The teacher will take 10 samples from the bag and repeat the two steps with the star again * The teacher will ask which sample size has the most variation in the results. Which sample size has the least variation? * The teacher will ask students to determine the preferences for the whole class and ask them to decide which sample size give the best prediction? * The teacher will ask if the class is a representative sample of the school and why?  1. **Class discussion and reflection(5 minutes)**  * The teacher will ask students why a sample is often used instead of a census * The teacher will ask students why a large sample is likely to be a better predictor of a population’s preferences than a small sample * The teacher will ask students: if they want to know the cartoon-watching habits of students, is it good to use a sample from a class at a high school as a sample to represent their school and why? |
| *10 min* | *Application*  *Pair-Check* | 1. **Pair Work (10 minutes)**  * The teacher will present students with a situation and a variety of populations and ask them to suggest an appropriate sample size to determine the results for the population * How many students in your school prefer volleyball to basketball? * How many students in your class prefer volleyball to basketball? * How many people in the world like chocolate ice cream? * How many people in your family like chocolate ice cream? |
| *5 min* | *Consolidation*  *Ticket out of the door* | 1. **Ticket-out-of-the door (5 minutes**)  * The teacher will ask students to write down one new thing that they learned today * If one student finishes they will exchange and perform a “Pair-Check” * The teacher will collect the ticket before students step out for recess |

**7. Reflections: To be completed after you have taught the lesson.** (In this section, you will assess the effectiveness/ineffectiveness of your lesson and of your teaching.

**a) Effectiveness of your lesson***.*

*Include 2 or 3 lesson elements that were effective/ineffective. What went well, what could have gone better? How was the pacing of your lesson? Were your teaching strategies effective? Were all students engaged? Did the students accomplish your goal? Did your assessment strategies work?*

*What do you need to learn more about? What do you need to work on when planning your next lesson? Should you discuss something with your AT or your FA?*

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| **What was effective/ineffective about your lesson** | **How do you know?** | **What steps will you take to improve?** |
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**b) Effectiveness as a Teacher:**

*Include 2 or 3 comments about your effectiveness as a teacher or areas that could be improved. You could comment on your ability to manage the class, use higher order questions, your questioning technique and your ability to have the participation of all students. How effective was your oral and/or written communication? Were you able to adjust your lesson plan as required?*

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| **What was effective/ineffective about you as a teacher?** | **How do you know?** | **What steps will you take to improve?** |
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